

ON MINES AND MINERS IN KINTA, PÊRAK.



THE valley of the Kinta is, and has been for a very long time essentially a mining country. There are in the district nearly five hundred registered mines, of which three are worked by European Companies, the rest being either private mines, *i.e.*, mines, claimed by Malays, which have been worked by them and their ancestors for an indefinite period, or new mines, in other words new concessions given indifferently on application to Malays and Chinese. There are about three hundred and fifty private Malay mines, and it is with these principally that the following paper will deal.

So far, no lodes have been discovered in Kinta ; it is, however, probable that, as the country is opened up and prospectors get up amongst the spurs of the main range, the sources of the stream tin will come to light.

Mining in Kinta, like mining in Lârut, is for stream tin, and this is found literally everywhere in Kinta ; it is washed out of the sand in the river beds—a very favourite employment with Mandheling women ; Kinta natives do not affect it much, although there is more than one stream where a good worker can earn a dollar per day ; it is mined for in the valley, and sluiced for on the sides of hills ; and lastly, a very suggestive fact to a geologist, it has been found on the tops of isolated limestone bluffs and in the caves* which some of them contain.

This stream tin has probably been worked for several centuries in Kinta ; local tradition says that a very long time ago Siamese were the principal miners and there is evidence that

* Report on the geology and physical geography of the State of Pêrak, by Revd. J. E. TENNISON-WOOD, F.G.S., F.L.S., &c.

very extensive work has been done here by somebody at a time when the method was different from that which is commonly adopted by Kinta Malays at the present day. There are at least fifty deep well-like pits on the Lahat hill, averaging about eight feet in diameter and perhaps twenty feet deep.

Further up country, I have seen a large pit which the natives called a Siamese mine ; this is about fifty feet in diameter and over twenty feet deep and its age may be conjectured from the virgin forest in which it is situated. Besides these, at many places extensive workings are continually brought to light as the country is opened up, and these appear to have been left undisturbed for at least a hundred years. Further evidence of old work is furnished by slabs of tin of a shape, unlike that which has been used in Pêrak in the memory of living persons ; and only a few weeks ago two very perfect "curry stones" of an unusual shape and particularly sharp grit, were found at a depth of eight feet in natural drift. These may, perhaps, have been used to grind grain.

So peculiarly is Kinta a mining district, that even the Sakais of the hills do a little mining to get some tin sand wherewith to buy the choppers and sarongs which the Malays sell to them at an exorbitant price.

The Malay *pawang* or medicine-man is probably the inheritor of various remnants and traditions of the religion which preceded Muhammadanism, and in the olden time this class of persons derived a very fair revenue from the exercise of their profession, in propitiating and scaring those spirits who have to do with mines and miners ; even now, although the Malay *pawang* may squeeze a hundred or perhaps two hundred dollars out of the Chinese *towkay* who comes to mine for tin in Malaya, the money is not perhaps badly invested, for the Chinaman is no prospector, whereas a good Malay *pawang* has a wonderful 'nose' for tin, and it may be assumed that the Chinese *towkay* and, before his time, the Malay miner, would not pay a tax to the *pawang*, unless they had some ground for believing that, by employing him and working under his advice, there would be more chance of success than if they worked only on their own responsibility.

The *pawang* being a person who claims to have powers of divination and other imperfectly understood attributes, endeavours to shroud his whole profession in more or less of mystery. In his vocabulary, as in that of the gutta-hunters, special terms are used to signify particular objects, the use of the ordinary words being dropped; this is called "*bahása pantang*."

The following are some of the special terms alluded to:—

Ber-olak tinggi, instead of *gajah*—elephant. The elephant is not allowed on the mine, or must not be brought on to the actual works, for fear of damage to the numerous races and dams; to name him, therefore, would displease the spirits (*hantu*).

Ber-olak dāpor, instead of *kuching*—cat. Cats are not allowed on mines, nor may the name be mentioned.

A tiger of enormous size called *Ber-olak* is said to haunt Kinta. The legend about him is as follows:—A long time ago, in the pre-Muhammadan days, a man caught a tiger kitten and took it home; it grew up quite tame and lived with the man until he died, when it returned to the jungle and grew to an enormous size, nine cubits (*hasta*) long, it is still there, though nobody ever sees it, it does no harm, but sometimes very large tracks are seen and men hear its roar, which is so loud that it can be heard from Chēmōr to Bātu Gajah; when heard in the dry season, it is a sure prognostication of rain in fifteen days' time.

Sial, instead of *kerbau*—water-buffalo. The buffalo is not allowed on the mine for the same reason as the elephant.

Salah nama, instead of *limau nipis*—lime (fruit). If limes are brought on to a mine, the *hantu* (spirits) are said to be offended, the particular feature of the fruit which is distasteful appears to be its acidity. It is peculiar that Chinese have this superstition concerning limes as well as Malays; not very long ago a Chinese *towkay* of a mine complained that the men of a rival *kongsi* had brought limes and squeezed the juice into his head race, and furthermore had rubbed their bodies with the juice mixed with water out of his head race, and he said they had committed a very grave offence, and asked that they might be punished for it.

With Malays this appears to be one of the most important "*pantang*" rules, and to such a length is it carried that "*bělachan*" (shrimp-paste) is not allowed to be brought on to a mine for fear it should induce people to bring limes as well, lime juice being a necessary adjunct to *bělachan* when prepared for eating.

Euah rumput or *lunga rumput*, instead of *biji*—tin sand.

Akar or *Akar hidop*, instead of *ular*—snake.

Kunyit instead of *lipan*—centipede.

Batu puteh instead of *timah*.—metallic tin.

It is important that the '*Pawang*' should be a marked man as to personal appearance; for this reason there are certain positions of the body which may be assumed by him only when on the mine; these attitudes are,—first, standing with the hands clasped behind the back, and secondly with the hands resting on the hips; this second position is assumed when he is engaged in invoking the "spirits" of a mine; the *pawang* takes his station in front of the *geng-gulang*, having a long piece of white cloth in his right hand, which he waves backwards and forwards over his shoulder three times, each time calling the special *hantu* whom he wishes to propitiate, by name; whilst engaged in this invocation his left hand rests on his hip. During the performance of any professional duty he is also invariably dressed in a black coat, this nobody but the *pawang* is allowed to wear on a mine. These attitudes and the black coat comprise what is technically termed the *pakei pawang*.

The professional duty of the *pawang* of a mine consists in carrying out certain ceremonies, for which he is entitled to collect the customary fees, and in enforcing certain rules for the breach of which he levies the customary fines. *

* About 1878, the principal *pawang* of the Lârut district, one PA'ITAM DAM, applied to me as Assistant-Resident to reinstate him in the duties and privileges which he had enjoyed under the Orang Kaya Mantri and, before him, under CHE LONG J'AFFAR. He described the customary ceremonies and dues to be as fol-

At the time of the opening of a mine he has to erect a *geng-gulang* and to call upon the tutelary *hantu* of the locality to assist in the enterprise. The fee for this is one bag (*karong*) of tin sand.

At the request of the miners, instead of a *geng-gulang*, a *kapala nasi* may be erected, as cheaper and more expeditious. The fee is one *gantang* of tin sand.

He also assists in the ceremony of hanging the *ancha* in the smelting house, his principal associate in this is the "Panglima Klian," who draws the *ancha* up to its proper position close under the attaps.

1. Raw cotton must not be brought on to a mine in any shape, either in its native state or as stuffing of bolsters or

lows :—He had to visit all the mines from time to time especially those from which tin ore was being removed; if the daily out-put of tin suddenly decreased on any mine it was his business at once to repeat certain invocations (*puja*) to induce the tin-ore to remain (*handak di-pulih balik sapaya jangan mengorang biji*). Once in every two or three years it was necessary to carry out an important ceremony (*puja besar*) which involved the slaying of three buffaloes and a great feast, the expense of which had to be borne by the *pawang*. On the day of the *puja besar* strict abstinence from work was enjoined on every one in the district, no one might break ground or even pull up weeds or cut wood in the whole province. Further, no stranger whose home was three days' journey away, might enter one of the mines under a penalty of twenty-five dollars.

The *pawang* was entitled to exact from the owners of mines a customary payment of one slab of tin (or \$6.25 in cash) per annum for every sluice-box (*palong*) in work during the year.

In any mine from which the tin-ore had not yet been removed it was strictly forbidden to wear shoes or to carry an umbrella; no Malay might wear a sarong.

The Chinese miners, always superstitiously disposed, used (under Malay rule) to adhere to these rules and submit to these exactions but since 1875 the *pawang* has found his occupation and income, in Lârut at all events, gone.

mattresses. The fine (*hukum pawang*) is \$12.50 ; the ordinary pillow used by a miner is made of some soft wood.

2. Black coats and the attitudes designated *pakei pawang* may not be assumed by any one on the mine with the exception of the *pawang*. (*Hukum pawang*, \$12.50.)

3. The gourd used as a water vessel by Malays, all descriptions of earthenware, glass and all sorts of limes and lemons and the outer husk of the cocoa-nut are prohibited articles on mines. (*Hukum pawang*, \$12.50.)

Note.—All eating and drinking vessels should be made of cocoa-nut shell or of wood, the noise made by earthenware and glass is said to be offensive to the *hantu*. But in the case of a breach of this regulation the *pawang* would warn the offenders two or three times before he claimed the fine.

4. Gambling and quarrelling are strictly forbidden on mines, the fine is claimed for the first offence. (*Hukum pawang*, \$12.50.)

5. Wooden aqueducts (*palong*) must be prepared in the jungle a long way from the mine. (*Hukum pawang*, \$12.50.)

The noise of the chopping is said to be offensive to the *hantu*.

6. Any breach of the *bahasa pantang* is an offence. (*Hukum pawang*, \$12.50.)

7. Charcoal must not be allowed to fall into the races. (*Hukum pawang*, \$12.50.)

8. A miner must not wear, and go to work on the mine in, another man's trowsers. (*Hukum pawang*, one *karong* of tin sand.)

Note.—This applies only to the *sěnar sěluar basah*, or working dress. It is also an offence to work in the garment called *sarong*.

9. If the *chupak* (measure) of the mine is broken, it must be renewed within three days. (*Hukum pawang*, one *bhara* of tin.)

10. No weapon may be brought within the four posts of the smelting house which immediately surround the furnace. (*Hukum pawang*, \$1.25.)

11. Coats may not be worn within this space. (*Hukum pawang*, \$1.25.)

12. These posts may not be cut or hacked. (*Hukum pawang*, one slab of tin.)

13. If a miner returns from work, *bringing back with him some tin sand*, and discovers that somebody has eaten the cold rice which he had left at home, he may claim from the delinquent one *karong* of tin sand. The *pawang* adjudicates in the matter.

14. An earthenware pot (*priok*) which is broken must be replaced within three days. (*Hukum pawang*, one *karong* of tin sand.)

15. No one may cross a race in which a miner is sluicing without going some distance *above* him, up stream; if he does he incurs a penalty of as much tin sand as the race contains at the moment, payable to the owner of the race. The *pawang* adjudicates.

16. A *kris*, or spear, at a mine, if without a sheath, must be carefully wrapped in leaves, even the metal setting (*simpei*) must be hidden. Spears may only be carried at the "trail." (*Hukum pawang*, uncertain.)

17. On the death of any miner, each of his comrades on that mine pays to the *pawang* one *chupak* (*penjuru*) of tin sand.

It will be noticed that the amount of the majority of these fines is \$12.50; this is half of the amount of the fine which, under the Malay customary land, a chief could impose on a *ra'iyat* for minor offences. It is also the amount of the customary dowry in the case of a marriage with a slave or with the widow or divorced wife of a *ra'iyat*.

The Malay miner has peculiar ideas about tin and its properties; in the first instance he believes that it is under the protection and command of certain spirits whom he considers it necessary to propitiate; next he considers that the tin itself

is alive and has many of the properties of living matter, that of its own volition it can move from place to place, that it can reproduce itself, and that it has special likes—or perhaps affinities—for certain people and things and *vice-versâ*. Hence it is advisable to treat tin-ore with a certain amount of respect, to consult its convenience, and what is, perhaps, more curious, to conduct the business of mining in such a way that the tin ore may, as it were, be obtained without its own knowledge!

I append a vocabulary consisting of a few Malay words which are more particularly connected with mines and miners. The language is so susceptible of change that, unless a record is kept of such terms, they may, perhaps as the method of working alter, be entirely lost. As it is, I imagine that the majority of these words and expressions (being technical) have never as yet found their way into any dictionary.

Ambil, or *Tanah Ambil*.—The ore-bearing drift, which Chinese miners call *karang*.

Ambil gunong.—The upper beds of drift.

Ambil gabor.—The middle beds of drift.

Ambil besar.—The lower beds of drift.

Ambil biji.—The process of sluicing after the tin-bearing drift has been thrown into the races. (See *isi parit*.)

The following is the order of the respective processes included under this term. 1. *Mengumbei*. 2. *Melongga parit*. 3. *Meraga batu*. 4. *Bertunda*. 5. *Ber-panggul*. 6. *Malong*. 7. *Pandei* (for explanation see these words).

Ampang.—A dam.

Anak Kélian.—Malay miners who are liable to pay a tax to the mine-owner.

Ancha.—A square frame 1' 6" × 1' 6", composed of strips of split bamboo for the floor and four pieces

of peeled wood for the sides,—the proper wood is *k yu sungkei** because it has flat even twigs and leaves which lie flat and symmetrically—these must be bound together with a creeper; rattan may not be used; it is hung to the *tulang bumbong* just under the attaps of the smelting shed: it is used as an altar, the offerings made by the miners to the spirits being placed on it.

Ayer atas.—The system of using water-power to throw down the earth into the sluicing races.

Ayer minggang.—Where water-power is not available at the top, but can only be brought half way up, bark shoots being used.

Ayer kuak.—The system of throwing down the earth into the head-race by manual labour.

Bébas.—Free of tax, thus the *pawang* and *penghulu kélian* each have one water-race *bébas*.

Batang hari kélian.—The tail race of the mine into which all the races (*parit*) flow; all the tin sand which reaches the *batang hari kélian* is the property of the mine-owner. (See *parit*).

Batu adang.—Great wall-like masses of rock, generally limestone, which stick up and may alter the level of the bottom by a precipitous drop of many feet.

Batu ampar.—The bed-rock. (See *tangloh*).

Batu kachau.—Small stones placed in a *parit* on the right and left alternately so as to create a ripple.

* *Seperti sungkei be-rendam* “like a soaked *sungkei* stick.”—When the *sungkei* stick has been soaked for a long time, say three months, the peel comes clean away; proverbial expression used of a person “cleaned out.”

Batu menunggal.—Nodules of limestone rock appearing through the surface of the ground.*

Batu sawar. †—A line or row of rocks.

Benting.—An embankment.

Ber-kait.—The process of lifting water or drift by means of the *kait*. (See *kait*).

Ber-panggul.—The state of a race which is fitted with the dams called *panggul*.

Bertunda —To drive the tin-bearing drift sand—after the stones have been thrown out—down the races; it is done by pushing and lifting it down stream with a *pengayuh memblah*. (See *ambil biji*).

Biji.—Tin sand.

Biji anak.—Small bright crystals of cassiterite.

Biji hangat or *hangus*.—Fine slag and drops of metallic tin from the furnace.

Biji ibu.—Masses of tin ore especially if mixed intimately with matrix.

Biji mati.—Black dull-looking ores.

Biji tahi.—Light ores, wolfram, tourmaline, &c.

Buku.—A slab of tin.

Chápak.—A wooden plate for rice.‡

* Also called *batu renong*, because the miners meeting such an obstacle cannot remove it, but can only stop and stare at it (*renong*, to stare).

Ed.

† *Batu sawar*.—There is a legend about a hunting party in the forest. All the men were arranged in a row beating the jungle for game when Sang Kalembei hailed them and they were turned into stone.

Ed.

‡ The ordinary *chapak* in domestic use is smaller than the *dulang*, but in the mines the larger platter is called *chapak* and the smaller one *dulang*.

Ed.

Chukei sěnduk.—The duty or rent due to the owner of a furnace for the use of it. The customary duty was, if the owner of the furnace was the owner of the mine that produced the tin to be smelted, two *kati* of tin for every *karong* of tin sand smelted; if the owner of the furnace was not also the owner of the mine, one *kati* of tin for every *karong*.

Dagul.—A covered drinking-vessel made from a cocoa-nut shell. It has a small aperture and is fitted with a rattan cord for carrying it. (See *sikul*.)

Dasar.—A drinking vessel made out of a section of a cocoa-nut shell; used as a food or water-vessel.

Dulang.—A round slightly concave wooden tray from 1' 6" to 2' 6" in diameter used for washing ore in the process called *mělanda* or *měrian*.

*Dendulang** or *pěraup*.—A small nearly oval wooden tray measuring about 1' 6" long and 9 inches to 1 foot broad used for lifting the partially cleaned drift and ores into the *palong* during the processes called *malong* and *pandei*.

Entah or *tanah entah*.—The flat surface left after the top layers have been sluiced away by hill mining and ground sluicing. It may contain tin or not.

It is still workable by the methods called *těbok* and *ludang*.

Gabin.—Pipe clay.

Genggulang.—The platform or altar erected by the *pawang* at the opening of a mine. It should be built

* *Dendulang*.—The buttress of a forest tree out of which a small round or oval tray may be fashioned. *Dendulang* is also used of a piece of metal inserted between the shaft and blade of a spear.

entirely of '*kayu sungkei*'. The wood is peeled, except the four branches which serve as posts, these are only peeled up to the twigs and leaves which are left on, about 4 feet 6 inches from the ground. At 3 feet 3 inches from the ground a square platform of round peeled sticks about 1 foot 3 each way, is arranged; one foot above the level of the platform a sort of railing is fixed round three sides of the square and from the open side a ladder with four steps reaches down to the ground; the railing is carried down to the ground on each side of the ladder and supports a fringe of cocoa-nut leaves (*jari-lipan*). The whole erection must be tied together with creepers, rattan must not be used.

Gėlók.—A cocoa-nut-shell drinking vessel. (Patani dialect.)

Gundei.—The tally sticks by which the feeding of the furnace is reckoned (see *mengumbus*) made of bamboo, about six inches long.

Hasil Kélian.—The duty payable to the owner of the mine. The customary rate was one-sixth of the output for excavations (*těbok* and *ludang*) and one-third of the output for hill mining (*lėris*.)

Isi parit.—The act of throwing down the drift into the races, (see *ambil biji*).

Jari lipan.—A fringe made of the young white leaflets of the cocoa-nut palm plaited together.*

Jampi.—The incantation of the *pawang*.

Kayu kachau.—Small sticks stuck into the races answering the same purpose as *batu kachau*.

* FORBES mentions a " palm-leaf fringe " used in certain rites by the Kalangs of Java. (A Naturalist's Wanderings, p. 101.)

Kēdan tangan.—A small flat piece of wood about 5" × 3" and half an inch thick, used to scrape the the drift out of holes in rocks and into the *dulang*.

Kait.—An application of the old fashioned balance pole for lifting water or drift from an excavation.

Kait ayer.—The pole used for lifting water only, in this there is only one movement, a straight lift.

Kait raga.—The description applied to lifting drift only, in this there are two movements, the first whereby the basket is lifted straight up from the hole and the second whereby it is carried round a part of the circumference of a circle and deposited at some distance.

Kapala nasi.—A stake of peeled wood (*kayu sungkei*) stuck in the ground, the top of this is split into four so as to support a platform similar to that of the *geng-gulang*. Offerings are made upon it.*

Karang.—A term used by Chinese to express the principal tin-bearing drift (*ambil besar*).

Karang gantang.—A term used by Chinese to express the upper and inferior beds of tin bearing drift (*ambil gunung*).

Karong.—A measure of tin sand. The measure of capacity whereby tin sand is reckoned in Kinta is as follows :—

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2 <i>chupak piah</i>	=	1 <i>chupak ampat</i> .
2 <i>chupak ampat</i>	=	1 <i>penjuru</i> .
6 <i>penjuru</i>	=	1 <i>karong anam</i> .

* "It is quite a common thing in Java to encounter by the wayside near a village, or in a rice-field, or below the shade of a great, dark tree, a little platform with an offering of rice and prepared fruits to keep disease and blight at a distance and propitiate the spirits." (A Naturalist's Wanderings, FORBES, p. 103.)

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8 *penjuru* = 1 *karong delapan*.

Kěping.—A slab of tin; also a customary weight. Metallic tin weights are:—

10 *kati* of tin = 1 *ringgit timah*.

Ampat ringgit (timah) karong suku \$3.75 = 1 *kěping*.

8 *keping* = 1 *bhara*.

This *kati* should be equal to the weight of thirty dollars.

Kělian.—A mine. It is noticeable that the Sakais call a mine simply *parit*.

Kong.—Chinese expression equal to the Malay *tangloh*.

Kulit akar.—The upper two or three inches of mould immediately above the *tanah padi*.

Lampan.—A process of getting tin ore by sluicing in the bed of a mountain stream or in situations in the hills where water can be obtained.

Lêris.—To mine on the hills.

Lombong.—A term used of a large excavation, a Chinese mine.

Ludang.—A small shallow excavation (Malay) which can be baled with a *penimba chuak*.

Me-malong.—The process of cleaning the ores in the long *palong* (sluice-box.)

Mdsak.—To smelt.

Mělanda.—To wash drift or sand from a river bed in a *du-lang*. There is in Kinta a saying or proverb connected with this process. It is said of a person who takes his wages every day as he earns it, or sells his produce as quickly as possible. "*Rupa orang mē-landa, dia handak makan hari itu juga.*"

Meraga batu.—To lift the stones out of the race with a basket.

- Me-longga parit*.—Having lifted the stones out of the small race, to drive the sand containing ores down-stream.
- Me-raup*.—The act of lifting the rich dirt into the *palong* with the *dulang pe-raup* in the process called *memalong*.
- Mě-riau*.—A word meaning the same as *me-landa*.
- Mě-muput*.—To smelt tin in the Chinese fashion (the same as *puput*).
- Naik-ka kĕlian*.—(Lit. to go up to a mine). The universal expression, whatever may be the position of a mine, for going to a mine.
- Mengumbui*.—To stir the dirt in the small race in order to break up lumps and liberate the stones. (In Chinese mining this is called *me-lanchut*.)
- Mengumbus*.—To smelt tin in the Malay fashion.
- Mengumbus pelantar*.—The same, keeping an account of the ladles of tin ores as they are put into the furnace (by this the reliefs at the bellows are reckoned). The account is kept by moving one of the tally sticks along a rattan line.
- Palong*.—A sluice-box made of a tree split in half and hollowed out. One about eight feet long is used in the process called *mě-malong*; the other, five feet long, is used in the process called *pandei*.
- Pandei (memandei)*.—The final washing of the ores in the small *palong*.
- Panchur*.—A spout of water falling from a height on to a platform on which is placed lumps of stiff clayey drift which it is desired to reduce; or a cascade falling over large stones amongst which are thrown lumps of clay for the same purpose.
- Panggul*.—Small dams placed in the races to retain the rich dirt which is afterwards washed up in the long *palong*.

Pantang burok mata.—The period of mourning observed when a death occurs at a mine.

Mourning consists in abstention from work (in the case of a neighbour or comrade) for three days, or, in the case of the death of the *pawang*, *penghulu kelian* or the feudal chief, for seven days. The expression is derived from the supposition that in three days the eyes of a corpse have quite disappeared. Chinese miners have a similar custom; whoever goes to assist in the burial of a corpse must not only abstain from work, but must not go near the mine or smelting furnace for three days.

Papas.—To lift off the overburthen and get it out of the way.

Papas dengan ayer.—To get rid of the overburthen with the assistance of water.

Parit.—The small races in which the miners work. All the tin sand washed up out of the *parit* is the property of the *anak kĕlian* after they have paid the *hasil kĕlian*.

Penakong (takong).—A dam with a valve whereby water may be retained in a reservoir and allowed to accumulate.

Pen-chubak.—A digging-tool made of iron with a wooden handle.

Pen-chubak kayu.—The same but all wood.

Pengayuh.—A wooden spade with a handle similar to that of a paddle.

Pengayuh membĕlah.—A large description.

Pengayuh sembat.—A small description.

Pengayuh penyodok or *pengikis* or *sudip*. *—A small implement used to clean the spades with.

* *Sudip.*—A stick or spoon used to stir puddings (*mengachau dodul*). It has a handle and therefore differs from the stick called *kuau*.

When working the *tanah padi* the *pengayuh ber-ubong* or spade made of two pieces may be used, but when working the *tanah ambil*

Pengayuh batang sendiri.—A spade made entirely of one piece of wood.

Penimba or *penimba chuak*.—A vessel used for baling, it may be made of bark, the covering of the efflorescence of the *pinang* tree (*upih*) or of any old tin box or vessel.

Perasap.—Half a cocoa-nut shell, a cup, or any other vessel, in which votive offerings of sweet smelling woods and gums are burnt.

Pelantar.—The ladle with which the tin is put into the furnace.

Raga.—A basket.

Raga jurong.—A basket shaped like a spoon with a tip cut off; used to take the stones out of the race. It serves the purpose of a sieve, as it lets the sand through.

Raga sidik.—A basket of the same pattern only smaller.

Raga tala.—A flat shallow basket used with the *kait* to lift dirt out of the mine.

Raga rĕlau.—A smelting furnace. The Malay furnace is supplied with a blast produced from two upright cylinders the pistons of which are worked by one man, the furnace is built like a truncated cone, on either side there is a hole and supply hopper to feed the slag, the charcoal and ores being put in the top. The hoppers are called *palong*.

Rĕlau semut.—The Chinese furnace, without a blast.

Rĕlau tongkah.—The Hokienese furnace built on a stand, the foundation being three or four iron rice-pans (*kuali*). It is iron bound, and supplied with a blast; it will burn soft wood charcoal.

Sikul.—A cocoa-nut shell water vessel like the *dagul*.

Suak.—The source of a head-race, e.g., *suak gunung* or *suak rĕdang*.

or tin-bearing stratum the *pengayuh batang sendiri* and no other may be used.

Sangka.—A receptacle in which to burn offerings of sweet woods and gums; it is made of a stick of bamboo about three feet long, one end being split and opened out to receive the charcoal: it is stuck in the ground near races and heaps of tin sand.*

Surut or *meniurut*.—The process of getting rid of the sand by driving it down the stream.

Tahi biji.—See *biji*.

Takong.—A dam.

Tali ayer.—The head-race of a mine.

Tanah ambil.—(See *ambil*).

Tanah buang.—Drift which is not worth putting through the process of washing overburthen. Equal to *tanah papas*.

Tanah lérís.—High ground which is available for hill mining.

Tanah padi.—Made earth, immediately below the top inch or two of mould called *kulit akar*. It may contain tin ores or not.

Tanah papas.—(See *papas*.)

Tatin gulang.—The *pawang's* fee for the ceremony of erecting a *genggulang*.

Teka.—Laterite.

Tekong.—Slag from the furnace.

Tebok.—An excavation larger than a *ludang*, and which cannot be baled with a *penimba*, a *kait* must be erected.

Tangloh.—The sub-stratum of earth or clay below the ore.

Tuan tanah or *tuan kélian*.—A mine-owner.

Túkang api.—The smelter.

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* See No. 2 of this Journal, page 238. The derivation of the name of this primitive Malay censer from the Sanskrit *çankha* (conch-shell) has been pointed out (Malay Manual, p. 32). FORBES notes having seen in a sacred grove in Java "the remnants of small torches of sweet gums which had been offered." (A Naturalist's Wanderings, p. 97).